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CENTRAL INTELLIGENCE AGENCY

INFORMATION REPORT

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This is UNEVALUATED Information

THE SOURCE EVALUATIONS IN THIS REPORT ARE DEFINITIVE. THE APPRAISAL OF CONTENT IS TENTATIVE. (FOR KEY SEE REVERSE)

25X1

1. Introduction

a. The design and construction of samples of a transmitter tube that could be switched to 50 or 100 kw was a task set to the Germans in the Svetlana Radio Tube Factory by the Soviet Zusmanovskiy (fnu)[1,2]. The tube was developed between autumn 1949 and spring 1950; five more examples of the tube were made by December 1950, in the MGL (Moshchnaya Generatornaya Lampa) section of Svetlana.

b. The intended use of the tube was never clear to the Germans. Zusmanovskiy ordered the tube in connection with the "10 mW tube" project.

c. A conference on this tube, in Leningrad, was attended by Zusmanovskiy, Rutkovskiy (fnu)[3] representing the Svetlana development chief, and Lifshits (fnu), head of large transmitter tube laboratory, and Galina Mikhaylovna Moskovskaya, - Lifshits' assistant.

d. The Soviet management of Svetlana was very interested in the rapid production of this tube and the work was done under pressure.

e. The samples of the tube were sent to Moscow, and Zusmanovskiy was very pleased with them. Mrs. Moskovskaya was praised.

2. Description of the Tube (See sketch of tube on page 3.)

a. Four pins are arranged in a square at the tube base; two of these, opposite each other, must be connected to the heater if 50 kw is used. For 100 kw, all four pins must be connected. Each of the four pins leads to a molybdenum disc which is installed inside the tube at approximately the height of the anode flange. Four needle-shaped heaters are inserted between each set of two molybdenum discs, so that a total of 8 hairpins or 16 heater rods pass through the tube. Its effective emission length is 220 mm. The diameter of the heater wire is 1.3 mm. Tungsten wire is used.

25 YEAR RE-REVIEW

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b. The tube is directly heated with alternating current. The cathode had diameter of 50 mm and the grid, a diameter of 60 mm. The heater wires are held together by a molybdenum disc mounted on a ceramic insulator. In this way, the quartz connection which is usually necessary at this point was eliminated. In order to avoid unnecessary heating of the ceramic, the insulator is shielded against radiation from the cathode. This ceramic insulator had been used with good results in the 10-kw tube. The grid is screened by a molybdenum netting.

c. The anode has an inside diameter of 90 mm. Its outer surface has whirls (not shown in the drawing) which are important for water cooling.

d. A new type of cooling vessel was used for this tube. The water reaches the tube, which is inverted into the vessel, rises along the tube in a double-walled brass container, and drops back outside. Distilled water must be used for cooling purposes. The cooling vessel has an outside diameter of 120 mm. Kovar glass-to-metal seals were also used in this tube. The grid is connected by means of a cylinder which attaches flexibly to the metal groove a short distance above the heater connections. Water cooling is also used here.

1. [redacted] Comment. Zusmanovskiy was known to be connected with an institute (NII) referred to as Semashko. [redacted] 25X1 25X1

[redacted] It may well be [redacted] that Zusmanovskiy had a post somewhere else, as well as at Semashko.

2. [redacted] Comment. A Zusmanovskiy was known to be connected with Institute 160 at Fryazino near Moscow. He was an electronics specialist and once headed Institute 160. [redacted] 25X1 25X1

[redacted] Whether or not this Zusmanovskiy was also connected with Sanatoriya Semashko cannot be determined. 25X1

[redacted] 25X1

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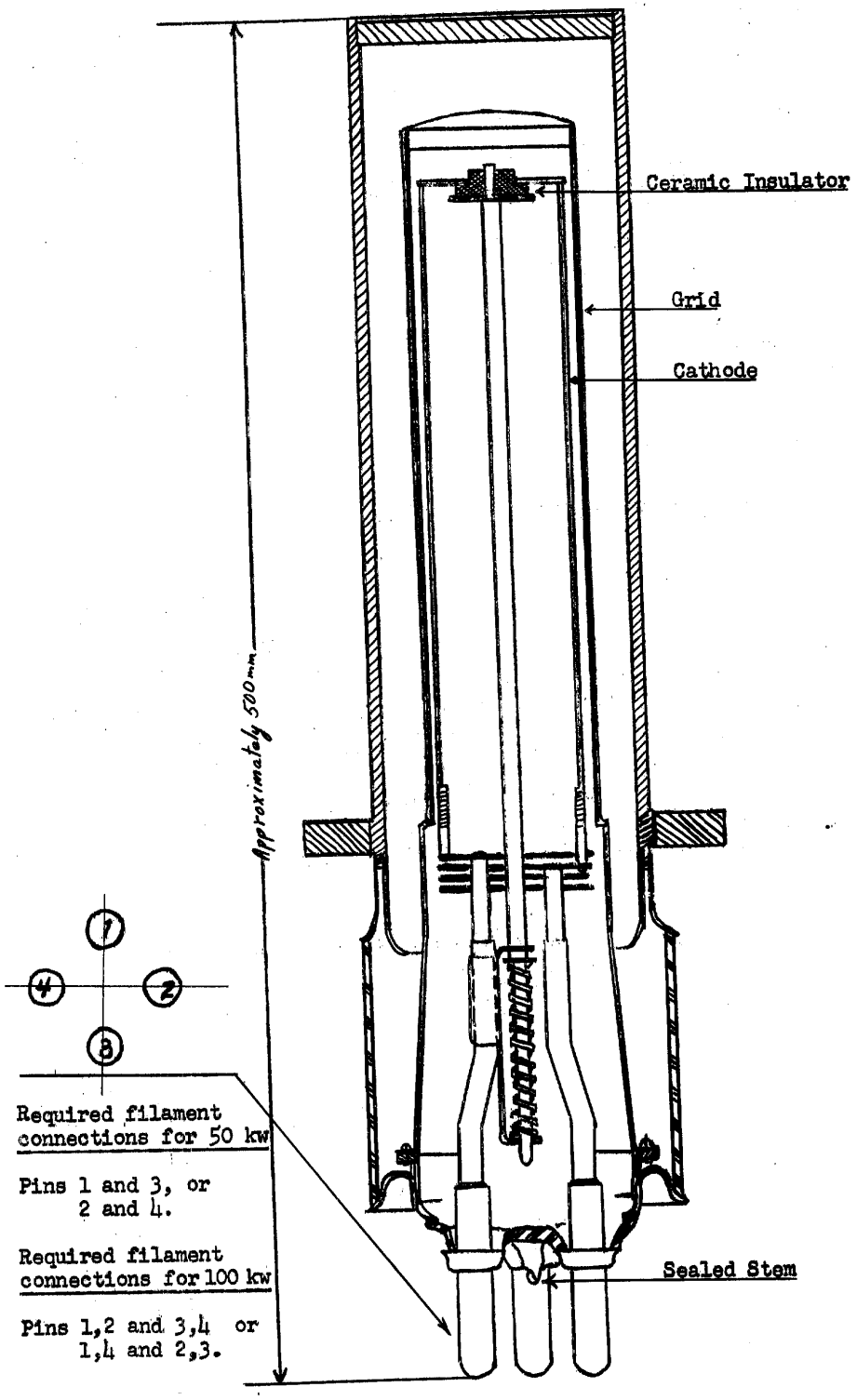
Sketch of 50 or 100 kw Transmitter Tube



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